



Appl. No.: 09/785,312
Art Group Unit 2834
July 1, 2002
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Please amend the claims to read as follows:

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1. (Amended) A piezoelectric actuator for an ink jet printhead, comprising:

- a block body of piezoelectric material having a bottom face through which the mechanical energy of the actuator is transferred to a receiving member, said body having an active portion adjacent to the bottom face as well as an inactive portion;

- a layered structure of alternating signal electrodes and common electrodes arranged in the active portion, substantially parallel with the bottom face and separated by layers of the piezoelectric material, wherein each signal electrode is neighbored by at least one common electrode and each common electrode is neighbored by at least one signal electrode;

- a layered structure of alternating auxiliary electrodes and common electrodes arranged in the inactive portion, substantially parallel with the bottom face and separated by layers of the piezoelectric material, wherein each auxiliary electrode is neighbored by at least one common electrode and each common electrode is neighbored by at least one auxiliary electrode;

- at least one signal lead electrode formed on a first side face of said block body of piezoelectric material and interconnecting the signal electrodes;

- a ground lead electrode formed on a second side face opposite to the first side face and interconnecting the common electrodes;

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- and an auxiliary lead electrode interconnecting the auxiliary electrodes, wherein the auxiliary lead electrode is formed on a third side face of the block body, wherein the active portion is divided into a plurality of fingers arranged in parallel to one another and integrally connected with each other by the said inactive portion of the block body.

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7. (Amended) The piezoelectric actuator according to claim 11, wherein the auxiliary electrodes extend over both inactive portions of the block body, and dummy electrodes are provided in the second active portion, each dummy electrode being arranged in the same plane as a corresponding one of the common electrodes and being electrically connected to the auxiliary lead electrode.

9. (Amended) The ink jet printhead according to claim 12, wherein a connecting piece electrically connects the signal electrodes and common electrodes of the actuator and is disposed on a top face of the block body opposite to the bottom face thereof.

Please add the following additional claims:

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--11. A piezoelectric actuator for an ink jet printhead, comprising:

a block body of piezoelectric material having a bottom face through which the mechanical energy of the actuator is transferred to a receiving member, said body having an active portion adjacent to the bottom face as well as a first inactive portion and a second inactive portion adjacent to a portion of the bottom face;

a layered structure of alternating signal electrodes and common electrodes arranged in the active portion, substantially parallel with the bottom face and separated by layers of the piezoelectric material, wherein each signal electrode is neighbored by at least one common electrode and each common electrode is neighbored by at least one signal electrode;

a layered structure of alternating auxiliary electrodes and common electrodes arranged in the first inactive portion, substantially parallel with the bottom face and separated by layers of the piezoelectric material, wherein each auxiliary electrode is neighbored by at least one common electrode and each common electrode is neighbored by at least one auxiliary electrode;

at least one signal lead electrode formed on a first side face of said block body of piezoelectric material and interconnecting the signal electrodes;

a ground lead electrode formed on a second side face opposite to the first side face and interconnecting the common electrodes;

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and an auxiliary lead electrode interconnecting the auxiliary electrodes, wherein the auxiliary lead electrode is formed on a third side face of the block body, and wherein the block body comprises a second inactive part adjacent to a portion of the bottom face.

8 → 12. An ink jet printhead containing a piezoelectric actuator, said piezoelectric actuator comprising:

a block body of piezoelectric material having a bottom face through which the mechanical energy of the actuator is transferred to a receiving member, said body having an active portion adjacent to the bottom face as well as an inactive portion;

a layered structure of alternating signal electrodes and common electrodes arranged in the active portion, substantially parallel with the bottom face and separated by layers of the piezoelectric material, wherein each signal electrode is neighbored by at least one common electrode and each common electrode is neighbored by at least one signal electrode;

a layered structure of alternating auxiliary electrodes and common electrodes arranged in the inactive portion, substantially parallel with the bottom face and separated by layers of the piezoelectric material, wherein each

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auxiliary electrode is neighbored by at least one common electrode and each common electrode is neighbored by at least one auxiliary electrode;

at least one signal lead electrode formed on a first side face of said block body of piezoelectric material and interconnecting the signal electrodes;

a ground lead electrode formed on a second side face opposite to the first side face and interconnecting the common electrodes;

and an auxiliary lead electrode interconnecting the auxiliary electrodes, wherein the auxiliary lead electrode is formed on a third side face of the block body, and wherein at least one ink channel terminates in a nozzle and is covered by a flexible receiving member, said piezoelectric actuator being bonded to said flexible receiving member.--

R E M A R K S

Claims 1-3 and 8 have been rejected by the Examiner under 35 U.S.C. § 102(a) as being anticipated by Japan (100) (figs. 3 & 5). Also, claims 4-7, 9 and 10 have been rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Japan (100), Naka in view of Uehara, Dibbern or Okumura. These rejections are respectfully traversed.